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Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Implementation of the Local Competition	)	CC Docket No. 96-98
Provisions of the Telecommunications	)	
Act of 1996	)	

Attachments to Ameritech Comments

Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D. C. 20554

In the Matter of	)	
	)	
Implementation of the Local Competition	)	
Provisions in the Telecommunications Act	)	CC Docket No. 96-98
of 1996	)	

Joint Affidavit of Debra J. Aron and Robert G. Harris

on Behalf of Ameritech

May 26, 1999

A. Qualifications

My name is Debra J. Aron. I am the Director of the Evanston offices of LECG, Inc., a position I have held since July 1995. LECG, Inc. is an economics and finance consulting firm, providing economic expertise for litigation, regulatory proceedings, and business strategy. I received a Ph.D. in economics from the University of Chicago in 1985, where my honors included a Milton Friedman Fund fellowship, a Pew Foundation teaching fellowship, and a Center for the Study of the Economy and the State dissertation fellowship. I was an Assistant Professor of Managerial Economics and Decision Sciences from 1985 to 1992 at the J. L. Kellogg Graduate School of Management, Northwestern University, and a Visiting Assistant Professor of Managerial Economics and Decision Sciences at the Kellogg School from 1993-1995. I was named a National Fellow of the Hoover Institution, a think tank at Stanford University, for the academic year 1992-1993, where I studied innovation and product proliferation in multiproduct firms. Concurrent with my position at Northwestern University, I also held the position of Faculty Research Fellow with the National Bureau of Economic Research from 1987-1990.

At the Kellogg School, I have taught M.B.A. and Ph.D. courses in managerial economics, information economics, and the economics and strategy of pricing. I am a member of the American Economic Association and the Econometric Society, and an Associate member of the American Bar Association. My research focuses on multiproduct firms, innovation, incentives, and pricing, and I have published articles on these subjects in several leading academic journals, including the *American Economic*

Review, the *RAND Journal of Economics*, and the *Journal of Law, Economics, and Organization.*

I have consulted on numerous occasions to the telecommunications industry on strategic and efficient pricing. I have testified in several states regarding the proper interpretation of Long Run Incremental Cost and its role in pricing; the economic interpretation of pricing and costing standards in the Telecommunications Act of 1996; limitations of liability in telecommunications; Universal Service; and proper pricing for mutual compensation for call termination. I have also submitted affidavits to the Federal Communications Commission in support of Ameritech's petition for Section 10 forbearance from dominant carrier status in the Chicago LATA; analyzing the merits of Ameritech Michigan's application for authorization under Section 271 of the Telecommunications Act to serve the in-region interLATA market, CC Docket No. 97-137; and explaining proper economic principles for recovering the costs of permanent local number portability, CC Docket Nos. 95-116 and 99-35. I have conducted analyses of mergers in other industries, including several cable television mergers, under the U.S. Merger Guidelines. In addition, I have consulted in other industries regarding potential anticompetitive effects of bundled pricing and monopoly leveraging, market definition, and entry conditions, among other antitrust issues, as well as matters related to employee compensation and contracts, and demand estimation. In 1979 and 1980, I worked as a Staff Economist at the Civil Aeronautics Board studying price deregulation of the airline industry.

My name is Robert G. Harris. I am a Director at LECG, Inc. and Professor Emeritus of Business and Public Policy in the Haas School of Business, University of California, Berkeley. My business address is 2000 Powell Street, Suite 600, Emeryville, CA 94608.

I earned Bachelor of Arts and Master of Arts degrees in Social Science from Michigan State University and Master of Arts and Doctor of Philosophy degrees in Economics from the University of California, Berkeley. My academic research has analyzed the effects of economic regulation and antitrust policy on industry performance and the implication of changing economics and technology for public policies in transportation and telecommunications. Early in my career, I published extensively on competition, vertical relations and regulatory policies in the rail freight industry. I have published research on the reform of Japanese telecommunications policy; the strategic character of telecommunications services and its implications for public policies; the effects of regulation and the AT&T divestiture on technological innovation in telecommunications; the deployment and adoption of Integrated Services Digital Network; the development of competition in local access and exchange services; and the development of interconnection policies.

In addition, I have testified on telephone rate design, costing and pricing principles, competition policy and alternative regulation before the Federal Communications Commission and before the state commissions of 25 states plus the District of Columbia. I have testified before the United States Senate, the United States

House of Representatives and the Joint Economic Committee of Congress on transportation, antitrust and telecommunications policy issues.

The complete curriculum vitae of Drs. Aron and Harris are attached to this affidavit as Attachment I.

B. Introduction

In this affidavit, we respond to the recent notice by the Federal Communications Commission ("the Commission" or "FCC") requesting comments on the unbundling of network elements.[1] In particular, the Commission seeks comments on (1) how, in light of the Supreme Court's ruling,[2] the Commission should interpret the standards set forth in Section 251(d)(2) of the Telecommunications Act of 1996 ("the Act");[3] and (2) which specific network elements the Commission should require incumbent LECs to unbundle under Section 251(c)(3). Our analysis in this affidavit is based upon a careful consideration of the language and goals of the Act, the recent decision of the U.S. Supreme Court vacating the FCC's unbundling rule, standard applied economic analysis, and a preliminary investigation of the availability of network elements outside the incumbent's network.

As we indicated earlier, the fundamental goal of the Telecommunications Act of 1996 is to make society better off. To this end, the Act seeks to encourage innovation,

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1 Second Further Notice of Proposed Rulemaking, In Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, FCC 99-70, CC Docket No. 96-98, Rel. April 16, 1999, hereinafter *Second NPRM*.

2 AT&T Corp. et. al. v. Iowa Utilities Bd. et. al., January 25, 1999.

promote efficient production, and accelerate the deployment of advanced telecommunications services to all Americans. The Act strongly advocates competition over regulation as the best way to achieve these objectives. Congress expressly intended the Act "to promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers."[4] However, as discussed further below, competition is a *means* to further the Act's objectives, not an end in itself. Competition must be fostered in a manner that espouses sound economic principles if we are to avoid uneconomic and undesirable outcomes.

In order to facilitate competition in local exchange markets, the Act imposes certain requirements upon incumbent local exchange carriers, including the duty to provide retail services for resale at discounted wholesale rates, the duty to interconnect with competitors' networks, and the obligation to provide certain network elements, to be determined by the FCC, to competitors on an unbundled basis. The Act provides in Section 251(d)(2) that the FCC must determine which network elements will be made available to competitive local exchange carriers (CLECs) by considering, at a minimum, whether:

A. access to such network elements as are proprietary in nature is *necessary*; and
B. the failure to provide access to such network elements would *impair* the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer. (emphasis added)

These criteria are referred to as the "necessary and impair" standards.

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3 110 STAT. 56 PUBLIC LAW 104–104, Feb. 8, 1996.

The FCC promulgated rules implementing Section 251(d)(2) of the Act in its First Report and Order.[5] In Rule 319, the primary unbundling rule, the FCC required the incumbent LECs ("ILECs") to provide blanket access to their networks.[6] That is, Rule 319 compels ILECs to grant CLECs access to the local loop, the network interface device, various switching and call routing functionalities, transport facilities, and even operator support systems.

On January 25, 1999, the Supreme Court vacated Rule 319.[7] The Court held that the FCC founded its interpretation of the necessary and impair standards on an erroneous premise. This premise was that the Act obliged incumbents to unbundle their entire networks, and that 251(d)(2) merely gave the Commission the authority to limit that requirement. The Court found that this premise is emphatically incorrect.[8] On the contrary, there is no underlying duty to unbundle. Rather, the FCC must *affirmatively determine* which elements meet the necessary and impair tests. The Court's decision was based on the following reasoning.

First, the Court ruled that the FCC did not interpret the Act in a way that gives substance to the necessary and impair standards. According to the Court, the Act

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4 S. 652 cited in the Act, 110 STAT. 56 PUBLIC LAW 104–104.

5 First Report & Order In re Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, 11 FCC Rcd 15499 (1996), hereinafter *First Report & Order.*

6 47 C.F.R. 51.319 (Part 51 – Interconnection, Subpart D - Additional Obligations of Incumbent Local Exchange Carriers, Sec. 51.319 Specific unbundling requirements).

7 AT&T Corp. et. al. v. Iowa Utilities Bd. et. al., January 25, 1999, see slip op. at 25.

8 Slip op. at 24.

"requires the FCC to apply some *limiting standard*, rationally related to the goals of the Act, which it has simply failed to do."[9] The Court points out that the FCC reduced the standards to a tautology: the FCC assumed that a carrier would only request an unbundled element if using such an element would improve its expected cost or quality relative to any other alternative source of the element.[10] But, the Court points out, if every requested element tautologically satisfies the impairment standard, then Congress need not have included the necessary and impair standards at all. Hence, the Commission's overly broad interpretation was inconsistent with Congressional intent.

Moreover, the Court ruled that in establishing so weak an interpretation of "necessary and impair," the FCC's interpretation was not consistent with the "ordinary and fair meaning of those terms."[11] The Court held that it cannot be considered an "impairment" if, for example, the lack of access to an element reduces a competitor's profits from 100% to 99%, although the FCC's interpretation would have it so. In response to an analogy drawn by Justice Souter in a dissenting opinion, the Court said:

> "The proper analogy here ...[is] the presence of a ladder tall enough to enable one to [change a lightbulb], but not without stretching one's arm to its full extension. A ladder one-half inch taller is not, 'within an ordinary and fair meaning of the word' [ref omitted] 'necessary' nor does its absence 'impair' one's ability to do the job."[12]

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9 Slip op. at 21.

10 The Commission therefore also failed to account for cases where a carrier may request an element to raise the incumbents' costs.

11 Slip op. at 22.

In addition, the Court objected to the FCC's interpretation of the necessary and impair standards because the Commission considered *only* whether alternatives to a particular requested element would be available *from the incumbent* itself. The Court found that failing to consider whether there are *alternative* sources of the requested elements outside the incumbent's network, including self-provision,[13] is unacceptable.[14] The FCC *must* evaluate whether an element is available from an alternative source when determining whether that element satisfies the necessary and impair standards.

In a separate opinion concurring in part and dissenting in part (concurring with respect to Rule 319), Justice Breyer further elaborates on the Court's decision to vacate Rule 319. Justice Breyer points out that any unbundling requirement imposes real costs on society. Regulators should therefore avoid imposing unbundling mandates whose societal costs exceed their societal benefits:

> "[r]egulatory rules that go too far, expanding the definition of what must be shared beyond that which is essential to that which merely proves advantageous to a single competitor, risk costs that, in terms of the Act's objectives, may make the game not worth the candle."[15]

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12 Slip op. at 22, note 11.

13 Slip op. at 21-22: "which means that comparison with self-provision, or with purchasing from another provider, is excluded. ... But that judgment allows entrants, rather than the Commission, to determine whether access to proprietary elements is necessary, and whether the failure to obtain access to nonproprietary elements would impair the ability to provide services."

14 Slip op. at 22: "The Commission cannot, consistent with the statute, blind itself to the availability of

proprietary unbundled element of the incumbent (the switch in general) while also self-supplying the proprietary aspect of the element (i.e. the routing tables), then the incumbent's proprietary aspect would not pass the (combined) necessary and impair tests. Finally, the fourth possibility is where an entrant cannot technically provide its own substitute for the incumbent's proprietary aspect and the proprietary aspect is required to make the element usable. This situation could arise either because it is simply impossible as a technical matter to have a substitute for the proprietary aspect or because the incumbent would provide the element in such a way that it could not be done. If this is the case, the necessary test would require access to the incumbent's proprietary aspect of the element, and the element together with the proprietary aspect would be subject to the impair test.

4. Justification for this Interpretation of "Necessary" and "Impair"

Our framework for evaluating "necessary and impair" has the virtues that it is consistent with the language of the Act, meaningfully satisfies the concerns raised by the Supreme Court, is consistent with economic principles, and can be translated into a tractable, objective bright-line test.

a) Statutory Support

First, the definition is consistent with the language of the Act. We provide rigorous criteria for determining whether an aspect of an element is necessary when proprietary aspects of elements exist, including whether lack of access to the proprietary aspects would impair competition for otherwise non-proprietary elements. For elements that have no proprietary aspects, the impair test is readily applied. Not only are our

criteria valid from an economic perspective, they comport with an intuitive, common meaning of the words necessary and impair. That is, a proprietary aspect of an element is necessary if the element could not function without it. Lack of access to an element impairs reasonably efficient competitors if no competitor could compete without it but at least one could compete with it. Our definitions also provide a meaningful distinction between the necessary and impair standards, protecting proprietary features of an element unless they are technically critical. This is appropriate because, as we discussed earlier, there is a powerful social interest in protecting intellectual property rights. It is only by respecting intellectual property rights that we protect the incentive to invest in risky innovation efforts to the benefit of consumers and competition.

Moreover, while our definitions focus on competition, rather than competitors, they also satisfy the specific language of the Act, which provides that failure to provide the element would not "impair the ability of the telecommunications carrier seeking access" to provide service. It has been argued that this language requires that any carrier, no matter how inefficient, be provided with the element if failure to do so would impair its ability to compete. Our criteria handle this problem automatically. Consider a very inefficient potential entrant. By our criteria, a highly inefficient entrant seeking access would not be impaired by lack of access to the element, because such an entrant would not be able to provide service profitably even with the element, assuming that the element would be provided at realistic TELRIC-based rates. Unbundling is justified only if there are entrants who are efficient enough to make a profit using the unbundled element while paying realistic TELRIC-based prices, but who could not make a profit

without it. Conversely, a highly efficient entrant that did not need the unbundled element to compete likewise would fail the necessary and impair tests. The fact that the entrant might be able to make more profits with access to the element than without it is irrelevant in passing or failing the tests. Therefore, our necessary and impair tests focus only on those "reasonably efficient" entrants who truly would not be viable without access to a particular element within the relevant time frame.

b) Economic and Antitrust Market Principles

Second, our definitions give substantive meaning to the requirements of the Court by applying sound economic principles to the language of the Act. The Court fundamentally requires a limiting standard that explicitly accounts for the availability of elements outside the incumbent's network. In any real-world production process, there are virtually always substitutes, in some sense, for any input into production. The relevant question is whether those substitutes are close enough to or at cost levels that enable the entrant to be viable. For example, the classic textbook illustration of an essential facility is a single bridge over a river.[39] While it is certainly *technically* possible for a competitive railroad to build its own bridge to compete with the bridge monopolist (or develop an alternative technology entirely to bypass the bridge), the relevant issue is whether the entrant could make a business case that shows a profit even accounting for the costs of building the bridge or developing some other alternative. If

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[39] For example, see Areeda, Phillips E. and Hovenkamp Herbert. *Antitrust Law – An Analysis of Antitrust Principles and Their Application.* Vol. IIIA, Little, Brown and Company, 1991, for its discussion of *United States v. Terminal Rail Road. Assn*, 224 U.S. 383 (1912), p. 772b1.

the answer is yes, then access to the bridge is not required. Only if there is no profitable alternative is it possible that the bridge is required.

Our criteria are necessarily specific to a location and a period of time. Just as the viability of building a second bridge will depend on the width of the river, the surrounding terrain, and the expected traffic over the bridge, the viability of providing alternative telecommunications facilities will depend on the density of demand and other location-specific factors that affect costs and revenues. Business cases are not "universal," they are specific to the business conditions in an area; so should be the application of the necessary and impair standards. It is impossible to give legitimate meaning to the Supreme Court's remand or, indeed, to the language of the Act itself, without acknowledging that the availability of and viability of alternative supply is highly location-specific for most elements. Unbundling rules that comply with the Act cannot, therefore, be other than geography-specific. National unbundling rules cannot conform with the economic reality of the heterogeneity of alternative facilities available unless the relevant markets are national. Moreover, what cannot viably be replicated today may be duplicated in the future. Technology advances, demand changes, and resource costs change. Just because a second bridge, to recall our earlier example, could not be built viably in 1999 does not imply that it could not be done in 2001. By that time, there may be more advanced materials available (or existing materials available at lower cost), more advanced engineering methods developed, or greater demand to justify the cost. For the same reasons, an element that satisfies Section 251(d)(2) today in a

particular area must be re-evaluated periodically and removed from the unbundling list when it no longer satisfies the standard.

As is clear from our definitions of necessary and impair, the 251(d)(2) standards are directly and intimately entwined with the antitrust concepts of product market and geographic market definition. It is impossible to assess whether a competitor can enter the same market as the incumbent without knowing what the market is. If the competitor can profitably provide wireless services, is that the same market? Put another way, if the only viable competitors were using different technologies than the incumbent, should this be considered competitive supply from the standpoint of determining whether there are alternative sources of supply to the incumbent's elements? The answer to both of these questions requires a proper economic definition of the product market. Economists say that two firms compete with each other, or provide a competitive constraint to each other, if they are in the same product market.

The concept of economic product market definition is critical in antitrust litigation and in merger analysis. The Horizontal Merger Guidelines provide a detailed methodology for determining whether two firms are in the same product market; that methodology can, in our view, be appropriately applied here. The premise of the Merger Guidelines' approach is that market definition depends on consumers' willingness to substitute among products. Market definition is based entirely on demand-side substitution, not supply-side substitution. If consumers view two different end-use products as close enough substitutes that a "small but significant non-transitory increase in price" in one would induce a significant amount of defection of demand to the other,

then the two are in the same product market. In particular, if the defection would render the initial price increase non-profitable, then the two products are considered to be in the same product market.

The question of whether wireless or any other product is in the same product market as wireline service in a geographic area is an empirical question that cannot be answered in the abstract. In Section II below, we propose a bright-line test for switching in which we present some relevant statistics. We note here that our empirical analysis is highly conservative because we consider the availability only of digital, circuit switching as substitutes for Ameritech's switching elements. To the extent that other means of providing a similar service, such as packet switching, are substitutable on the demand side for circuit switches, our approach omits an important alternative source. Our omission is not the result of our belief that only circuit switches produce services that are in the same product market with Ameritech's services; but rather that our evidence shows that in most areas, the availability of circuit switches is so widespread that it is not necessary to evaluate whether the market is in fact broader. In our view, if a narrow consideration of identical elements fails to demonstrate reasonable availability of alternative supply, the Commission must consider the supply of elements that are not identical but can produce services that are in the same product market as the relevant services produced by the incumbent.

The other critical facet of market definition is proscribing the geographic boundaries of the relevant market. This factor is particularly important in this proceeding because, as we indicated earlier, the Court's mandate cannot be carried out by

imposing national rules that fail to account for geographic differences in the availability and viability of alternative supply of elements. Again, the Merger Guidelines provide a methodology for determining the geographic extent of the market, which also relies on the extent of demand substitutability. In the case of switching, for example, the relevant question for purposes of determining whether there are alternative sources of supply for unbundling a switch in, say, downtown Chicago is how far away a competitor's switch can be located and still be considered a viable substitute for switching in Chicago. This, in turn, depends on the cost of transporting calls to Chicago and the revenues to be had in Chicago if transport is provided. This, once again, is an empirical question, which is specifically modeled in the analysis presented by Dr. William Fitzsimmons in his accompanying affidavit. A similar analysis, which captures the specific geographic characteristics of each element, must be performed for each element that is under scrutiny for unbundling.

c) Cost, Quality, and Time Differentials

Our proposed framework addresses the question explicitly recognized by the Court of how much cost disadvantage is "too much" and how much quality disadvantage is "too much."[40] The court found that the Commission erred in concluding that "any" increase in cost or decrease in quality resulting from the failure to gain access to a network element satisfied the necessary and impair standards.[41] The determination of how much is too much is conceptually simple: if the cost or quality disadvantage is material to the point that entry that would not have occurred without unbundling, then

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[40] Slip op. at 22-25.

the materiality threshold has been met.[42] If the cost or quality differential is not sufficient to preclude profitable entry, then the threshold has not been met, even if the entrant's profitability would be significantly lower without access to the element than with it.

The viability of entry upon which our definitions hinge must be understood to occur within a reasonable time frame, not instantaneously. Standard competition policy analysis acknowledges that even delayed entry may exert competitive pressure on the market. The Merger Guidelines recognize that "entry [that is] timely, likely, and sufficient in its magnitude, character and scope" can "deter or counteract" anticompetitive conduct by a dominant firm or firms.[43] The Guidelines further note that entry into a new market can be difficult and time-consuming, requiring effort to acquire permits, construct facilities, debug support systems, and market the new product or service. Potential "committed" entrants[44] are considered to be viable if they are able to "achieve a significant impact on price" within two years of planning the entry.[45]

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41 *Second NPRM* at ¶21.

42 Slip op. at 22: "[T]he Commission's assumption that any increase in cost (or decrease in quality) imposed by denial of a network element renders access to that element 'necessary,' and causes the failure to provide that element to 'impair' the entrant's ability to furnish its desired services is simply not in accord with the ordinary and fair meaning of those terms."

43 Department of Justice and Federal Trade Commission Horizontal Merger Guidelines, April 2, 1992, § 3.0, hereinafter *Merger Guidelines.*

44 An entrant is considered to be "committed" if market entry requires substantial up-front capital investment. "Uncommitted entrants" are described in Section 1.3 of the Guidelines, and are defined as firms that can enter a market within one year without incurring "significant sunk costs" (defined as costs that would require more than one year's production to recoup), in response to a "small but significant and non-transitory increase in price." These uncommitted entrants are considered to be *current participants* in the product market, regardless of whether they currently produce any output.

45 *Merger Guidelines*, § 3.2.

According to the Guidelines, recent examples of entry in the industry provide a "useful starting point" for identifying the required ramp-up time for launching a new product or service.[46] Indeed, the Commission itself has recognized that viable entry need not be instantaneous. For example, in approving the MCI WorldCom merger, the Commission found that in most of the relevant markets there was a likelihood of substantial entry within a two-year time horizon.[47] Given that many of the concerns surrounding UNEs involve the expansion of existing network facilities and, given that many participants in the market have gained significant experience in providing competitive local telephone service recently, it is likely that new construction or expansion will take less time than it has in the past.

The requirement of viability simply requires that the entrant have a business case with a positive net present value. The concept of positive net present value does not require that the investment turn cash-flow positive or achieve any other short-run profit criterion within *any* specific time frame – only that the total discounted present value of revenues over the entire foreseeable life of the investment exceed the total discounted present value of its costs. Moreover, if it requires several months, say, for an entrant to build out its facilities in a market, the necessary and impair standards do *not* compel an incumbent to provide UNEs in the interim. The necessary and impair standards require that elements be shared if they cannot be self-provided; if the entrant is in the process of

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46 *Merger Guidelines*, § 3.1.

47 Memorandum Order & Opinion, In the Matter of Application of WorldCom, Inc. and MCI Communications Corporation for Transfer of Control of MCI Communications Corporation to WorldCom, Inc., CC Docket No. 97-211, September 14, 1998, at ¶¶ 36, 101, 105, 114, 151 discussing various input markets. Hereinafter *MCI WorldCom Order*.

building the elements, then they fail the necessary and impair standards *automatically* – the fact that the entrant is building them means they can be and are being self-provided. If the entrant wants to build up a customer base during the buildout period (as it may be rational to do), resale is available for this purpose. One role of resale is to establish a beachhead in the market in advance of facilities build-out. There is no additional public policy impetus that would justify unbundling to serve this purpose also, given the direct and indirect costs of unbundling.

Finally, the necessary and impair standards do *not* require that the entrant be able to serve the ILEC's entire customer base, as AT&T has advocated.[48] Local exchange service, as the name implies, is a location-specific service. Therefore, the relevant market for analysis is relatively limited on a geographical basis. Further, entrants will legitimately choose to pursue the most lucrative entry opportunities first, as would occur in any rational entry strategy. If the incumbent's customer base can be segmented easily into strata of varying profitability, then we would expect entrants to compete to different extents in each of these segments. In the particular case of local exchange service, this tendency towards segmentation of the customer base has been exacerbated by regulation-imposed, systematic discrepancies between prices and costs. Many observers find that there is substantial competition in the most profitable segment (centrally located multi-

[48] AT&T White Paper on Remand Proceeding on Rule 319, Submitted to the FCC, p. 23.

line businesses), while there is much less competition for the least profitable segment (rural single-line residential consumers).[49]

In particular, the lack of incentives has deterred firms from entering some segments of the market. The fact that many residential local service prices remain below cost due to historical social pricing policies by regulators makes this segment of the market unattractive from a profitability standpoint. In addition, existing long distance providers have strong incentives to procrastinate in residential competition in order to forestall the Baby Bells' entry into the long distance markets under the Section 271 process in the Act. It is not surprising, then, to see new entrants concentrating their efforts on some parts of the market and not others. The necessary and impair standards in no way imply or require that all or any particular subset of customers be served. If distorted retail rates deter entrants from serving certain customers, then perhaps the retail rates should be corrected; the 251(d)(2) standards should not be twisted in an attempt to correct that deficiency.

d) Ease of Application

Finally, our criteria can be translated into a meaningful bright-line test. Our bright-line test has three parts. First, we assert that the existence of one or more competitors is *prima facie* evidence that a competitor or competitors have a viable

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[49] As one industry analyst states, "We think that [last-mile] competition already exits in the large business market, with the RBOCs, CLECs, and major IXCs competing for local market share. We estimate that about 30% of Baby Bells' revenues come from this market segment. In the small and medium business segment (which we believe accounts for about 20% of the RBOCs' revenues), we are getting a glimpse of the competition and believe that the action could really heat up over the next several years. We include multiple dwelling units and small office/home office users in this segment." See Simon Flannery, "Telecoms in the Age of the Internet," JP Morgan, November 24, 1998, p. 7.

business case and lack of the unbundled element would not impair competition. We believe it is appropriate to define the necessary test in a way that recognizes a high standard for the protection of proprietary elements. Even if access to the non-proprietary element is required, access to the proprietary aspect of an element is only required when it is shown to be necessary. If one firm has entered the market, the incumbent clearly does not control the only facility and demonstration of the ability to enter by at least one firm should suffice.

In the second step of our impair test, if there are no *actual* competitors providing the service, then we look to the business cases of *potential* entrants. This is the subject of Dr. Fitzsimmons' affidavit. If it can be demonstrated that at least one potential competitor has a viable business case through self-supplying or purchasing the element, then the element should again be deemed to fail the impair test. As described earlier, when one or more proprietary aspects of an element pertain, the impair test further must consider the four "necessary" scenarios we described earlier.

As stated above, we believe that the existence of an actual competitor is sufficient to cause the impair test to be failed. When there is no actual competitor, our proposed test turns to whether a potential competitor could viably enter without access to the unbundled element. If there is no actual competitor, then we believe a potential competitor poised to enter the market viably sufficiently demonstrates a high likelihood of there being an actual competitor in a reasonable period of time, and we believe it demonstrates that lack of actual competitors is not the result of lack of access to the incumbent's element in question.

Third, if the element passes the second step, i.e., no viable potential competitor, then the analysis must demonstrate that at least one entrant could feasibly enter by purchasing the unbundled element at TELRIC-based prices. As we indicated earlier, failure to provide an element cannot be said to impair competition if no competitors could make a profit even with the element (at TELRIC-based rates). This might occur for two reasons. The first is the (perhaps unlikely) scenario that there exist no reasonably efficient potential entrants requesting elements. The second case is likely to be of much greater practical importance. This scenario may arise anywhere that retail rates for end-user services are below their total service long-run incremental costs (TSLRIC). If retail prices are below cost, it is likely that even a reasonably efficient competitor would not be able to compete with the retail rate and cover the TELRIC-based price of the unbundled elements. In that case, it is *not* lack of access that impairs a competitor; it is the retail rate. The competitor could not make a business case, even with the element. In such cases, it would be socially wasteful to require unbundling and thereby cause unbundling costs to be incurred. Indeed, this is a perfect example of the principles articulated by Justice Breyer when he explained that costs of unbundling must be considered. When there is no apparent benefit to unbundling, the costs of unbundling must dominate the calculus.

E. Guidance from the Essential Facilities "Doctrine"

1. The Essential Facilities "Doctrine"

The essential facilities "doctrine" is a framework the courts have adopted for determining whether a monopolist in an input to another market must share its facilities with a competitor in the "downstream" market, in cases where the competitor claims that

access to the facility is a prerequisite to competition.[50] If access to the facility is found to be "essential," the denial of access to the facility may be declared to be illegal. We note first that legal scholars and economists agree that the essential facilities doctrine ("EFD") should be applied only in cases where the defendant is considered to be a monopolist in that input, because both the courts and economists recognize that if there is competition in the output market, the defendant's input cannot be essential. Hence, competition in the output market automatically rules out the application of the EFD.

Various researchers and courts have proposed numerous means for defining an essential facility. According to legal scholar Daniel Troy, in order for a facility to be essential, three requirements must be met: first, the facility is necessary for entry into a market; second, duplication of the facility is beyond the standard cost of entry into the foreclosed market; and third, without access to the facility, the plaintiff cannot commercially exist.[51]

In legal scholar David Gerber's view, "All essential facilities share four salient characteristics. First, the facility must be unique. Second, it must remain unique while its output is widely distributed.[52] Third, it must be centrally located in the path of users'

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50 Several Supreme Court cases are commonly cited to provide the foundation for the essential facilities doctrine, such as *United States v. Terminal Road Rail Road Association of St. Louis* (1912), *Associated Press v. United States* (1945), *Otter Tail Power Co. v. United States* (1973), and *Aspen Skiing Co. v. Aspen Highlands Skiing Corp* (1985).

51 Troy, Daniel. "Unclogging the Bottleneck: A New Essential Facilities Doctrine." *Columbia Law Review,* Vol. 83, pp. 441-487, 1983, pp. 463.

52 Gerber illustrates this point by stating that "to remain essential, the monopolist may sell only access to or perishable output from his facility rather than pieces or shares in the facility.... [E]ssential facilities such as pipelines and bridges provide only access or passage; users do not purchase a lane or channel but purchase only a service that is consumed up as quickly as it is produced and therefore cannot be used to establish a competing bridge or pipeline."

production. And fourth, it must have the ability to impede or enable the process by which such users do their business."[53] In elaborating on his second criterion, Gerber wrote "only unique facilities can be essential because access to similar competing facilities allows potential users to circumvent the facility's control. Implicit in the notion of uniqueness is the preclusion of duplication, such as by the natural occurrence of a unique resource (e.g., a single strip of land through a mountain pass), a limited government license (e.g., a patent), onerous capital requirements in thin markets, or natural monopolies."[54]

The Seventh Circuit decision in *MCI Communications Corp. v. AT&T Co.* is probably the most salient recent articulation of the EFD in the telecommunications industry.[55] Specifically, the Seventh Circuit identified "four elements necessary to establish liability under the essential facilities doctrine." The four elements are:

(1) control of the essential facility by a monopolist;

(2) a competitor's inability practically or reasonably to duplicate the essential facility;

(3) the denial of the use of the facility to a competitor; and

(4) the feasibility of providing the facility.[56]

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53 Gerber, David. "Rethinking the Monopolist's Duty to Deal: A Legal and Economic Critique of the Doctrine of Essential Facilities." *Virginia Law Review.* Vol. 74, p. 1069-1113, 1988, p. 1073.

54 *Id.* pp. 1073.

55 *MCI Communications Corp. v. American Telephone & Telegraph Co.*, Nos. 80-2171, 80-2288, 708 F. 2d 10811983 U.S. App. LEXIS 31432, decided Jan. 12, 1983, p. 49.

56 For a full economic discussion of *MCI*, see Werden, Gregory. "The Law and Economics of the Essential Facilities Doctrine." Saint Louis University Law Review. (1982) Vol. 32, at pp.453-454. For a more encompassing discussion of the EFD, see Lipsky, Abbott B. and Sidak, Gregory J.

In each of these cases, a critical component of essentiality is the inability of competitors to duplicate or bypass the facility. If duplication or bypass is possible, the element fails the essentiality test by any of these definitions.

As an antitrust principle, the purpose of the essential facilities doctrine is to promote competition, not to further the interest of any particular competitor. Because the application of the essential facilities doctrine requires the owner to share the facility with rivals, which may lead to potential anti-competitive effects such as the dampening of incentives to innovate, it is recognized that the doctrine should be applied only if there is no other alternative to make the market more competitive.

Areeda and Hovenkamp made this point very clear: "The doctrine should be avoided unless it is the only realistic mechanism for making a market more competitive. Thus, proving essentiality also requires the critical showing that unless the facility is shared, the market is unlikely to become more competitive. Antitrust's purpose is not to permit particular rivals to survive, but to make markets more competitive. If the market can be made more competitive without forcing the defendant to share the facility, then granting the relief undermines antitrust's purpose."[57]

Gerber voiced a similar opinion: "Furthermore, in evaluating the desirability of a duty to deal in these exceptional situations, the test should be consumer welfare, a

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"Essential Facility" Stanford Law Review, Forthcoming Vol. 51 1999, and Areeda, Phillip E., *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 ANTITRUST L.J. 841 (1989).

standard of general economic wealth. Until courts understand refusals to deal in these terms, the doctrine of 'essential facilities' will not maximize consumer welfare."[58]

Competition and competitors are not totally unrelated, since no competition can exist if there is no competitor. However, there are many instances where what is essential to a *competitor* is not essential to *competition*. An example given by Areeda and Hovenkamp illustrates the difference. "[S]uppose the dominant natural gas seller owns a gas pipeline and the plaintiff, a small producer, wishes to share. Suppose this particular plaintiff can show that its own gas supplies are too small to warrant construction of a pipeline, and the line is essential to its own viability. However, other gas fields are in the area and other firms could readily construct pipelines to serve the market served by the defendant. In this case, the defendant's pipeline is 'essential' to the plaintiff's survival as a business, but it is hardly essential to increased competitiveness in the market, and granting the plaintiff's request reduces the incentive of others in a similar provision to build their own lines."[59]

Therefore, Areeda and Hovenkamp concluded, "Although effects on the plaintiff competitor can be congruent with the effect on competition, this can hardly be assumed and the emphasis must always be on the latter."[60]

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57 Areeda, Phillips E. and Hovenkamp Herbert. *Antitrust Law – An Analysis of Antitrust Principles and Their Application.* Vol. IIIA, Little, Brown and Company, 1991, p. 773b3.

58 Gerber, David. "Rethinking the Monopolist's Duty to Deal: A Legal and Economic Critique of the Doctrine of Essential Facilities." *Virginia Law Review.* Vol. 74, pp. 1069-1113, 1988, pp. 1071-1072.

59 Areeda and Hovenkamp, *Antitrust Law*, 1991, § 773b3.

60 Areeda and Hovenkamp, *Antitrust Law*, 1991, § 773b3.

2. Relevance of the Essential Facilities Doctrine to the "Necessary" and "Impair" Standards

While the Court did not find that the Commission should have applied the EFD in developing its application of the unbundling provisions of the Act, it implied that use of such an approach would have remedied the problem with the Commission's implementation, and hence was permissible.[61] Further, Justice Breyer found the EFD to be closely linked to the statutory language of the Act.[62]

Specifically, the four elements of the EFD as applied in *MCI* that we listed earlier are highly relevant to the necessary and impair standards of the Act and are consistent with our approach, as it explicitly asks the decision-making body to consider whether the competitor can practically or reasonably duplicate the essential facility, which is the core of the Supreme Court ruling. The actual insights from the case law and literature on the EFD are summarized as follows.

First, evidence that there are competitors in the market absent compulsory unbundling shows that the input is not essential. If competitors exist, it must be that the facility has economic substitutes which are competitively available, and that, therefore, the incumbent does not "monopolize" the relevant input under standard antitrust market definition.

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61 "We need not decide whether, as a matter of law, the 1996 Act requires the FCC to apply that standard; it may be that some other standard would provide an equivalent or better criterion for the limitation upon network-element availability that the statute has in mind. But we do agree with the incumbents that the Act requires the FCC to apply some limiting standard, rationally related to the goals of the Act, which it has simply failed to do." Slip op. at 21.

62 "Although the provision describing which elements must be unbundled does not explicitly refer to the analogous 'essential facilities' doctrine (an antitrust doctrine that this Court has never adopted),

Second, the EFD holds that a facility is not "essential" if it can be obtained elsewhere or self-provided. If the facility can indeed be obtained elsewhere, it cannot be controlled by a "monopolist," and hence the facility fails the test on the first prong. If the facility can be self-provided, it fails the test on the second prong.

Third, the incumbent's scale and scope or cost advantages are not sufficient reasons for forced sharing. It must be shown that the incumbent's "advantages" are so extensive and pervasive that the facility cannot be feasibly duplicated by the entrants. As described above, the relevant issue is the effect on competition, not on individual competitors. If other competitors can achieve any scale economies enjoyed by the incumbent, the fact that a small new entrant does not would not warrant unbundling. Also, the test is whether entrants can enter viably, not how much (economic) profit they would earn upon entry. Whether gaining access to the scale economies of the incumbent would increase the entrant's profits is irrelevant if the entrant can enter without the unbundled element, albeit at smaller profits.

Fourth, even if entry requires duplication of assets with spare capacity, the costs of duplication may be justified by the benefits of genuine competition. In many competitive markets in our economy, excess capacity exists because numerous competitors exist. The value of having several competitors, even though it may result in redundant capacity, may well be worth the cost of any such duplication. In addition, especially in rapidly growing markets like telecommunications, what appears to be

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the Act, in my view, does impose related limits upon the FCC's power to compel unbundling." See *Breyer Opinion*, at 18.

unneeded duplication today may be fully pressed into service tomorrow. Indeed, the very opening of telecommunications markets to competition is premised on the ability of the market to support more than one firm. Not too many years ago, many textbooks used markets such as these as examples where needless duplication made competition inadvisable. Any such arguments today should be subject to extreme and careful scrutiny.

Finally, under the EFD the firm requesting access bears the burden of proof to demonstrate that the facility is essential.

The examples discussed earlier of cases involving EFD all relate to cases in which non-proprietary facilities were involved. The facilities involved did not contain or involve intellectual property issues. Because this was the case, it makes the application of the EFD principles especially applicable here to the impair test as we propose it. Where proprietary aspects of elements are involved, our necessary test appropriately comes into play.

F. Applying the "Necessary" and "Impair" Standards

The Commission should define a general analytic framework that can be applied to each element in each geographic area and yield a clear "yes or no" answer to the question of whether the element satisfies Section 251(d)(2). Anything other than a bright-line test will inevitably lead to regulatory delay and gaming, while a bright-line test will instead facilitate the evolution of unbundling requirements as the network develops and as the degree of competition in the industry increases.

While Ameritech is presenting in this proceeding evidence and analyses for evaluating the self-supply of switching and transport for individual, relevant markets, more time is needed to gather pertinent data from the participants, and for the Commission to establish its analytical framework, in order to have a comprehensive framework that can be applied to each element in each market.

The first step in the bright-line test seeks to determine whether one or more firms are already competing with the incumbent in the relevant market via the same product or a product that is an adequate substitute. If so, clearly there is no need to unbundle. In the same vein, if an entrant is self-supplying the element in question in the relevant geographic region, or obtaining it from another carrier other than the incumbent LEC, the element *prima facie* fails the "impair" test and need not be unbundled, whether proprietary or not. If these conditions are not met, the Commission must conduct further empirical analysis, based on realistically modeled business cases of potential entrants to determine whether the element in question should be compulsorily unbundled.

Such business case analysis, however, should recognize that, even in the absence of unbundling, the entrant can continue to avail itself of LEC services purchased from wholesale or retail tariffs. For example, if an entrant can construct a reasonable economic substitute for shared transport by combining its own switching elements with ILEC-provided dedicated transport purchased under the relevant federal or state tariff, then this should be viewed as a relevant alternative source of supply. This example underscores the importance of defining the relevant product market using standard market definition principles, based on consumer demand considerations. The

Commission should be wary of "necessary" or "impair" claims based on narrow, technological market definitions, and instead explicitly must consider product substitution by end users.

Finally, requesting carriers who claim "necessity" or "impairment" should be required to bear both the burden of proof and that of supplying the relevant data to support this claim. Assigning the burden of proof to requesters is efficient and appropriate because entrants have the best, and often sole, control of the information on competitive supply. Entrants have direct information on the degree of impairment without unbundling, while incumbents and regulators have only incomplete information at best. Moreover, because entrants have an incentive to claim necessity or impairment even if none exists, they should bear the cost of making such claims. Placing the burden of proof on carriers requesting UNEs would provide the correct incentive for the requesters to disclose specific information as to their degree of necessity or impairment.

II. Application of the Framework to Individual Network Elements

At this point, we apply the framework we have developed for the necessary and impair standards to individual network elements. As we have emphasized in this affidavit, when the relevant geographic market is at the local level, it is not possible to draw broad, national generalizations in determining that an element should be unbundled. Such an analysis simply must be done at the relevant geographic level. If it can be demonstrated that it is not necessary to unbundle a particular element in at least one

geographic market, it is impossible to conclude that unbundling should occur everywhere as a national requirement would entail. On the other hand, passage of the tests in any given market does not mean that it would pass the test everywhere and a national unbundling requirement would be appropriate. The test simply must run on a geographic market specific basis.

The data necessary to consider an element-by-element analysis are far too voluminous to be collected and analyzed in the short 30-day timeframe allowed by the Commission. Instead, our analysis focuses on one element, switching, and considers the implications of this analysis for the switching "platform." We have confined our analysis to the geographic territory covered by Ameritech. Even so, the proper unit of analysis is that of individual local markets and we have further refined our "testing" on that basis.

A. Application to Unbundled Local Switching

As stated above, we have elected to concentrate our analysis on an application of the framework we propose to local switching. Local switching very clearly exemplifies the need for and benefits from a bright-line test which takes into account geographic and market conditions as well as the deployment of alternative facilities by entrants. Switching also has proprietary aspects of an otherwise non-proprietary element. Thus, , it would be appropriate to run the necessary test on any proprietary aspects of the element. The evidence we present vividly shows that local switching does not satisfy the impair standard in many geographic areas. It fails step 1 of the test in that there are existing competitors in those areas.

a) Step 1: Analysis of Actual Self-Supply

We analyze the current existence of competitors along three dimensions: (1) the number and location of competitor switches, (2) the number, location and size of rate centers to which competitor switches are assigned and (3) the number, location and size of rate centers in which competitors are collocated. An analysis of these data at the Ameritech region level makes it abundantly clear that a blanket requirement to unbundle switching is inappropriate. Further analysis of selected local markets emphasizes this finding and graphically shows that competitive switching inn medium sized as well as large markets is significant.

(a) Competitor Switches

There are currently 112 competitive local switches in Ameritech's service territory: 35 in Illinois, 27 in Michigan, 23 in Ohio, 11 in Indiana and 16 in Wisconsin.[63] As might be expected, the largest cities have the most competitor switches (28 in Chicago for instance); however, many smaller cities including Peoria (IL), South Bend (IN), and Dayton (OH) also have competitor switches. Figure 1 identifies the location of competitor switches and shows its location within Ameritech's region.

[63] As reported in the Local Exchange Routing Guide (LERG).